NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CRITICAL AREA PLANTING

(Acre)

CODE 342

DEFINITION

Establishing permanent vegetation on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

PURPOSE

- Stabilize areas with existing or expected high rates of soil erosion by water.
- Stabilize areas with existing or expected high rates of soil erosion by wind.
- Restore degraded sites that cannot be stabilized through normal methods.

CONDITIONS WHERE PRACTICE APPLIES

On areas with existing or expected high rates of erosion or degraded sites that usually cannot be stabilized by ordinary conservation treatment and/or management, and if left untreated, could be severely damaged by erosion or sedimentation or could cause significant off-site damage.

Examples of applicable areas are dams, dikes, mine spoil, levees, cuts, fills, surface-mined areas, and denuded or gullied areas where vegetation is difficult to establish by usual planting methods.

Other conditions where this practice applies is to the planting of waterways, saline seeps, embankments and others as listed in Table 5.

CRITERIA

General Criteria Applicable to All Purposes

Species selected for seeding or planting shall be suited to current site conditions and intended uses. Selected species will have the capacity to achieve adequate density and vigor within an appropriate time frame to stabilize the site sufficiently to permit suited uses with ordinary management activities.

Species, rates of seeding or planting, minimum quality of planting stock, such as Pure Live Seed (PLS) or stem caliper, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.

Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc., shall be specified before application.

Determine if there are residual herbicides that would impair stand establishment of either the cover crop or the desired plant community.

Corrective measures shall provide for establishment, management, and maintenance of the treated area. If the upslope area is contributing to the erosion problem, corrective practices must be

planned.

Engineering structures used in combination with vegetative treatment will be designed and installed in accordance with the standard and specifications for those practices.

All needed corrective items will be included in the plan.

Compacted construction sites may need site preparation prior to vegetating.

Grass and legume mixtures are desirable, especially on dams or other areas to aid in nutrient balance and offer wildlife benefits.

Planned treatment can be a single practice or a combination of practices. Examples of some treatment options are:

- Excluding all livestock or re-routing trails, and permitting natural revegetation.
- Establishing critical area to grass, trees, forbs and legumes, and excluding livestock.
- Stabilizing headcuts with grade stabilization structures and/or planting to trees.
- Implementing Prescribed Grazing so that the rest period will increase the upslope vegetation and allow natural healing of the existing gully.

To the extent practical, vegetation should be established before erosive velocities of water are introduced.

Newly seeded areas or areas seeded to palatable species attract grazing animals. The use of non-palatable species may be desirable unless other protective measures can be planned.

During grading and/or seedbed preparation, if excessive quantities of sediment and associated chemicals may be washed into surface waters or other sensitive areas prior to establishment of plants, additional erosion control practices may be needed.

Fertilization, mulching, or other facilitating practices for plant growth shall be timed and applied to accelerate establishment of selected species. Appropriate mitigating practices will be installed to reduce the risk of nutrient losses from the site, if needed.

The conservationist must evaluate the cause of the critical area and plan corrective measures. Corrective measures shall provide for establishment, management and maintenance of erosion control vegetation. If the upslope area is overgrazed and the lack of vegetation is allowing excessive runoff, the land under the control of the client will have appropriate measures planned.

If grazing or haying is anticipated, utilization levels as shown in the standard and specifications for Forage Harvest Management (511) and/or Prescribed Grazing (528A) shall be included in the plan. Other practices such as Livestock Exclusion (472), Pest Management (595), Soil Salinity Management (571), Toxic Salt Reduction (610), and Fence (382) are to be recommended as needed.

Trees

1. Seedbed preparation, Care of Planting Stock, and Planting - Refer to Tree and Shrub Planting standard and specification (612)
2. Species Selection - Refer to Table 1

Grasses, Forbs, and Legumes

Form OK-CPA-4 or equivalent, can be used to record site-specific information.

1. Refer to Pasture and Hay Planting (512) and Range Planting (550) standard and specifications for seedbed preparation and seeding operation. However, for sprigging the distance between rows shall not exceed 24 inches and shall be uniformly planted.
2. When sprigs are hand planted, a minimum of three healthy sprigs shall be placed on a maximum of 15-inch centers. Cover soil will be firmly packed over the planted sprigs.

3. For planting rates, dates, species selection, and area of adaptation, refer to Table 2, 3, 4, 5, and 6. Do not select aggressive species, such as yellow bluestems or tall fescue if there is the potential of off-site movement to a site where these plants are unwanted.

4. Overseeding - When vegetating sites where a quick cover is needed in combination with low maintenance plants, or where bermudagrass has thinned out or not fully established, introduced plants and/or native grasses may be overseeded.

   When these plants are overseeded at the time of initial bermudagrass sprigging, the seeding rate shall be half that shown in Tables 2, 3, 4, & 6. When overseeding poor stands of bermudagrass, the full rate shown in Tables 2, 3, 4, & 6 shall be used.

   All other aspects of the planting shall be followed except that shallow tillage is acceptable for seedbed preparation.

Seed Quality

Refer to the Oklahoma Seed Law found in Section I of the Field Office Technical Guide.

Management During Establishment

Do not graze until well established. Generally establishment will take two full growing seasons.

Criteria for Determining Stand Establishment

The vegetative cover will be considered adequate when there is a uniform coverage of 70 percent ground cover of the desired species without active rilling or bare areas.

Weed Control

Generally, weed control is needed when 3 weeds per square foot exist or a 50% canopy is anticipated. Mowing should be done when weeds reach a height of 6 - 8 inches, and not done when maximum air temperature exceeds 95 degrees, which is usually after July 15. Grazing for weed control is limited to flash grazing.

Protective Ground Cover

Schedule construction of engineering practices to coincide with proper seeding dates, or plan protective action such as temporary cover or mulch until the correct time for seeding.

Protective ground cover shall be planned whenever erosion rates are determined to be excessive. As the RKLS factor for the site exceeds 75, protective ground cover is recommended.

Mulching consists of spreading and anchoring and/or anchoring a ground cover over the area to be protected. Mulch shall be placed after the seeding operations unless used to protect area prior to seeding. Mulched areas shall be protected from grazing. Refer to Mulch (484).

Mulch selections will depend upon the need for site protection. Native prairie, weeping lovegrass, yellow bluestems, and tall fescue are satisfactory mulching materials if the treated area will not have protective cover for at least 6 months. However, do not select yellow bluestems, tall fescue, or other invasive species if movement to an off-site location is undesirable. Small grain straw will not be used if the area to be treated will need protective cover for more than 3 months.

Noncompetitive cover - Refer to Cover Crop (340).

Concentrated Flow Areas

Bermudagrass sodding shall be used where 1) graded, denuded or bare areas are subject to erosion, or 2) outlet channels, and 3) where perennial vegetative cover is needed sooner than can be established by planting.

1. Mulch Sodding. A mixture of topsoil and bermudagrass roots shall consist of fertile, loamy textured (<70% sand) topsoil containing a sufficient quantity of bermudagrass rhizomes of any

adapted variety to provide a uniform stand of plants on emergence. The rootstock shall be viable and the grass vigorous as indicated by well formed, deeply rooted, thick rootstock. At least 70 percent of the plants in the sod shall be bermudagrass with no invasive species. The proportion of soil in the soil-grass mixture shall be sufficient to protect the grass roots from the drying action of the sun after placing, spreading, and compaction has taken place.

Top growth taller than 2 inches shall be removed before harvesting. The soil should be moist to the harvested depth. Sod shall be disked two directions until grass is well mixed with topsoil to a depth of 4 to 8 inches. Keep the mulch sod moist until placed. Plant within 30 hours of harvest.

A. Site Preparation - Till the area of placement to a minimum depth of 4 inches. Adequate moisture shall exist to a depth of 4 inches.

B. Planting - The bermudagrass-topsoil (sod-mulch) shall be uniformly spread over the area to be treated at a minimum depth of 3 inches. After spreading, the soil shall be lightly packed to firm the soil around the roots.

C. Time- anytime soil is not frozen and when adequate moisture exists or is provided for establishment.

2. Solid Sodding. Solid bermudagrass sod will be obtained from adapted grass that is dense, well rooted and vigorous. Top growth taller than 2 inches shall be removed before harvesting. The sod shall be cut into slabs 10 to 12 inches wide with a minimum of 3/4 inches of soil thickness. The soil should be moist to the depth of cut, be protected from sun, wind, and freezing temperatures and kept moist until planted. It shall be planted within 48 hours of harvesting. (Also refer to Section on irrigation)

A. Site Preparation - The soil where the solid sod will be placed will be tilled, friable, and moist to at least 2 inches depth.

B. Planting - Sod shall be placed on tilled, moist soil by hand, soil side down, in rows at right angles to the slope. Each slab of sod shall be packed tightly against the edge of adjoining slabs and pinned. Row joints shall not join. Fill all openings with fertile, friable soil. The outside edge of the solid sodded area will be flush with the ground level.

C. Time – Anytime

Fertilizing and Soil Amendments

Refer to Nutrient Management (590). In most cases fertilizer can be applied at planting time. However, it may be desirable in some cases to apply the nitrogen portion in split applications where soil conditions are poor. If dispersive soils are present, gypsum, liming and the addition of organic materials may be needed.

Fertilizer and soil amendments are most effective when applied during the seedbed preparation process.

Irrigation

Planting operations will be planned to take advantage of seasonable rainfall. However, if moisture is not available when needed, the area to be planted shall be moistened to a depth of at least 3 inches prior to planting. A second application of similar amount shall be made following planting. Additional watering shall be done consistent with establishment needs. Water will be applied uniformly and at rates that will not exceed intake rate of the soil.

With supplemental irrigation, seeding dates can be extended one month for warm season plantings.

Fencing

When there is a need, fencing will be planned to obtain the needed level of management. Refer to Fence (382).

Gully Shaping

Use form OK-ENG-32 for gully design.

1. Needs determination. A technical determination should be made as to whether or not the gully should be mechanically shaped or just managed for natural recovery. An example of natural recovery would be where livestock trailing is causing a concentration of water and re-routing of livestock will allow vegetation to naturally re-establish and stabilize the eroding area.

2. Drainage Area. An evaluation must be made of the amount and velocity of water flowing through the gully. To the extent practical, runoff should be diverted before treatment. Needed management practices should be applied to the upslope contributing area to retain as much water as practical on the watershed above the gully.

3. Shaping.

   A. Safe velocities - The gully must be shaped to handle the runoff from a 10-year frequency storm. The Engineering Field Manual, Chapter 7, Exhibit 7-3, should be used in making this determination.

   B. Topsoil - Any topsoil shall be stockpiled prior to shaping. After shaping, spread the stockpiled topsoil back over the treated area.

   C. Side Slopes and Bottom - Side slopes will be shaped only to the extent needed to establish the desired vegetative cover. Side slopes shall be no steeper than 2:1. It is recommended that the side slopes be made no flatter than 5:1 in order to keep the treated area exposed to erosion to a minimum. For mechanical maintenance, side slopes should not be steeper than 3:1. The finished side slopes will need 8 to 12 inches of soil material capable of supporting adequate vegetation and having at least one to one and one half inches of available water-holding capacity per foot. If material is not available, consideration should be given to alternatives.

   D. Filling and Compaction - All trees, rubbish, etc., that will interfere with compaction, vegetative establishment or maintenance shall be removed from the treated area. The material shall not lead to the development of voids.

   All non-natural materials must be removed and disposed of prior to NRCS providing technical assistance, unless the site has been certified to be free of hazardous materials. The certification of "No Hazardous Materials Being Present" must be a written statement signed by appropriate personnel from the Oklahoma Department of Environmental Quality (ODEQ), or equivalent authority for Indian tribes.

   NRCS will not be involved in site selection or approval for these sites. NRCS can:

   1. Ascertain if the proposed site is near or within the 100-year floodplain,

   2. Determine if the proposed site is located within a known wetland.

   3. Provide recommendations for vegetation cover and erosion control measures for the site during the reclamation process.

   E. Covering - The buried material shall be covered a minimum of 36" with soil.

   Equipment should be routed in the placement of fill so as to give the best compaction practical. Any fill

portion shall be further compacted by running the construction machinery lengthwise on the gully at intervals of 20 - 30 inches.

Seeding Zones

P = panhandle
SW = south of I-40 west of I-35
SE = south of I-40 east of I-35
NW = north of I-40 west of I-35
NE = north of I-40 east of I-35

Wet Areas

For wetlands or where wetness during the normal planting season prevents access, seeding can be done anytime except October.

Additional Criteria To Restore Degraded Sites

If gullies or deep rills are present, they will be treated, if feasible, to allow equipment operation and ensure proper site and seedbed preparation.

Soil modifications will be added as necessary to improve or eliminate physical or chemical conditions that inhibit plant establishment and growth. Required amendments, such as compost or manure to add organic matter and improve soil structure and water holding capacity; agricultural limestone to increase the pH of acid soils; or elemental sulfur to lower the pH of calcareous soils, shall be included in the site specification with amounts, timing, and method of application.

CONSIDERATIONS

Native species or mixes that are adapted to the site and have multiple values should be considered.

Avoid species that may harbor pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

Gullied areas may or may not require shaping. Planting adapted trees and shrubs for natural healing, can be the most economical, long-term treatment as long as the upstream contributing factors are corrected.

Mechanical shaping may be needed to stabilize severe overfalls or active headcuts.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded and filed using the approved specification sheets or narrative statements in the conservation plan.

Use OK-CPA-4 and OK-CPA-4A, Vegetative Worksheet for site-specific specifications and to certify the practice. Jobsheet JS432 01 Tree and Shrub Planting, is available for woody plantings on Critical Areas.

OPERATION AND MAINTENANCE

Manage the treated area as long as necessary to stabilize the site and achieve the intended purpose.

Inspections, reseeding or replanting, fence repair, fertilization, and pest control may be needed to insure that this practice functions as intended throughout its expected life.

Maintain plant cover at or above 70 percent. Fertilize according to Nutrient Management (590) as needed to maintain required plant production. Control weedy plants as needed (Refer to Pest Management {595}).

Avoid grazing when soil is wet or extremely dry. Prevent damage to the vegetative cover from trailing or concentrations of animals, vehicles or people.

Table 1. Trees for gullied areas

Species	Adaptation	Spacing *1/*	Remarks
black locust	Greater than a 22" annual rainfall. Not in clayey soils or very shallow soils. Tolerates alkaline soils.	6 - 8 feet apart	Due to soil binding properties of the root system and fast growth, this is the most desirable species outside the native range of shortleaf pine. This species is preferred when planting close to the gully rim and on steep slopes.
loblolly pine	Greater than 40" annual rainfall. Suited to deep soils.	6 - 8 feet apart	Due to the fast growth and heavy needle litter blanketing the soil under the stand, it is the most desirable species within the shortleaf pine native range. It can be planted on steep slopes.
mixtures	Refer to the (612) Tree/Shrub Establishment Standard	6 - 12 feet apart	Plant other adapted trees to add diversity. These species should be planted on the least erosive area of the gully.

1/ Plant trees at the required spacing over the entire gullied area. Plant a minimum of 3 rows around the rim of the gully. Locate the first row on the gully rim approximately 5 feet back from the rim.

Table 2. Introduced species

Species	Rate/Ac. *1/*	Planting dates *2/*	Remarks
alfalfa	15 - 35 lbs. PLS	Aug. 20 - Oct. 1 Mar. 1 - Apr. 15	Statewide for waterways or outlets. Only when slopes are $\leq$ 2 percent with a velocity of $\leq$ 3 feet per second. Always plant inoculated seed.
bahiagrass 'Pensacola' 'Wilmington'	16 - 40 PLS	March 1 - June 30	MLRA 85A, 118, 119, 133B, Atoka, Bryan, Choctaw, LeFlore, McCurtian, and Pushmataha Counties. Freezes out occasionally in the northern portion of this range.
bermudagrass sprigs	30 bu.	Dec. 1 - June 1	Adapted to >25 inch rainfall belt
'Coastal'			SE - only first tier of counties north of the Red River.
Common			SE, SW
'Greenfield'			SE, SW
'Midland'			SE, SW
'Midland 99'			SE, SW
'Oklan'			SE, SW
'Quickstand'			SE, SW
'Tifton - 44'			SE, SW
'Hardie'			SE, SW - only on pH > 5.5
'World Feeder'			SE, SW

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		Feb. 1 - June 30	
Common			NE, NW
'Greenfield'			NE, NW
'Midland'			NE, NW
'Midland 99'			NE, NW
'Quickstand'			NE, NW
'Tifton - 44'			NE, NW
'Hardie'			NE, NW - only on pH > 5.5
"World Feeder'			NE, NW
bermudagrass - seeded species			
'Guymon' 'Wrangler'	4 - 8 lbs. PLS	April 15 - June 15	SE, SW - not on shallow, clayey soils < 30" rainfall or WEG's 1, 2, < 27" rainfall.
		May 1 - June 15	NE, NW, P - not on shallow, clayey soils < 30" rainfall or WEG's 1, 2, < 27" rainfall.
yellow bluestems	3 - 6 lbs. PLS	Dec. 1 - June 1	Can be invasive and move off-site.
'Caucasian'			Statewide - WEG's 3 - 6
'Ganada'			P, NW, SW, WEG's 3 - 6
'Ironmaster'			Statewide - WEG's 3 - 6, use on soils with a history of chlorosis. Iron chlorosis is related to soils that exceed a pH of 8.0 or when pH exceeds 7.5 on eroded limy soils.
'Plains'			Statewide - WEG's 3 - 6
'WW-Spar'			Statewide - WEG's 3 - 6
smooth brome	20 - 30 lbs. PLS	Sept. 1 - Oct. 31 Mar. 1 - Apr. 30	Silt loams and heavier soils. Adair, Cherokee, Delaware, Ottawa, Mays, Craig, Rogers, Nowata and Washington Counties. Also north 1/2 of Osage, Kay and Grant counties. Brome is susceptible to triazine herbicides. Caution should be used if run-off comes from corn or grain sorghum fields were triazines have been used.
tall fescue	20 - 40 lbs. PLS	Sept. 1 - Oct. 31 Mar. 1 - Apr. 30	NE, SE - pH of 5.5 - 8.0 is optimal. Can be used on wetter sites in central part of state. Not adapted to deep sands. Endophyte infected fescues are more hardy than non-endophyte infected fescue. Can be invasive and move off-site.
tall wheatgrass 'Jose'	12 - 20 PLS	Sept. 1 - Oct. 15 Jan. 1 - Feb. 28	SW, NW, NE, saline spots with electrical conductivity (EC) not to exceed 9 mmhos/cm at the time of planting.
weeping lovegrass	3 - 6 lbs. PLS	Last frost until June 15	Southern 2/3 of state.

1/ For species with a range given in the seeding rates, the higher seeding rates should be selected for poorer quality sites.
2/ The planting date for warm-season grasses can be extended one month with irrigation that meets the needs of the establishing plants.

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Table 3. Legumes in Mixtures 1/

Species	Rate/Ac. PLS Lbs.	Planting dates	Remarks
alfalfa	3 - 6	Aug. 20 - Oct. 1 Mar. 1 - Apr. 15	Statewide
birdsfoot trefoil	3 - 5	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	pH 5.0 - 7.5, saline tolerant (7 to 10 EC), moist conditions, fine textured blackland soils.
crownvetch	5 -10	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	NE - permeable, calcareous soils, >5.0 pH. Not on wet, poorly drained soils.
crimson clover	10 - 15	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	Well-drained soils except high pH, > 40" rainfall.
big hop	2 - 4	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	Well drained soils except very acid. > 36" rainfall.
'Kobe' lespedeza	10 - 20	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	SE - acid soils
'Korean' lespedeza	10 - 20	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	NE, SE - pH 4.5 to 6.5, not in extreme SE.
red clover	5 - 10	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	NE - clayey soils med-high fertile sandy loams high in available phosphorous. Acid soils must be limed to 6.5 to 7.0 for success.
white clover	2 - 4	Sept. 1 - Oct. 31 Mar. 1 - Apr. 15	Uplands and bottomlands with good moisture and nutrient balance, > 40" rainfall.

1/ When seeding legumes with mixtures the seeding dates for the base grass will apply. The dates listed in this table are provided for reference.

Table 4. Native Perennial Plants and Mixtures *1/ 2/ 4/ 5/*

Species	Rate/Ac. PLS Lbs.	Max % in Mixture	Max lbs. in Mixture	Remarks
alkali sacaton 'Saltalk'	4	35	1.4	Statewide
big bluestem 'Earl' 'Kaw'	12	40	4.8	 SW, SE ≥ 25" rainfall NW, NE, SW, SE
blue grama 'Lovington' 'Hachita'	4	40	1.6	West of 36" rainfall line.
buffalograss 'Texoka' unhulled 'Bison'	12	30	3.6	Statewide
eastern gamagrass 'luka' 'Pete'	20	40	8.0	Wetter sites.
Indiangrass 'Osage' 'Cheyenne' 'Lometa'	9	40	3.6	 East of I-35 Statewide Statewide
little bluestem 'Cimarron'	6.8	40	2.72	 West of I-35

sand bluestem 'Woodward'	12	40	4.8	NW, SW
sand lovegrass	2	20	.4	Statewide on sandy textured soils.
Species	**Rate/Ac. PLS Lbs.**	**Max % in Mixture**	**Max lbs. in Mixture**	**Remarks**
sideoats grama 'El Reno' 'Premier' 3/ 'Niner' 3/	9	50	4.5	Statewide, sod forming Statewide, bunchgrass, non-palatable Statewide, bunchgrass, non-palatable
switchgrass 'Blackwell'' 'Alamo'	6	30	1.8	NW, SW, NE, SE in ≥ 25 inch rainfall belt unless planted on sites with favorable moisture. Only on bottomlands
tall dropseed	2	10	.2	Statewide
western wheatgrass 'Barton'	14	40	5.6	P, NW

1/ Native harvest is allowable for each species. The origin of native harvest seed, seed quality, and seeding timing shall follow the guidelines listed in the Range Planting (550) standard and specifications.
2/ Mixtures meet specifications when the applied amount is not more than 5% below or 25% above the PLS pounds per acre listed for the species.
3/ Select the unpalatable species for situations when cattle may be present and grazing is not desired.
4/ Pure plantings can be utilized on shorelines or other sites that are wet enough to require plants tolerant of wetness and inundation.
5/ For seedings that are done into relatively undisturbed soils, such as Filter Strips, adaptation and mixtures found in the Range Planting (550) standard and specification are to be followed.

Table 5. Species selection for miscellaneous uses:

Grassed Waterways	**Saline Seeps**	**Maximum EC's for establishment**	**Landfills, Abandon Mined Lands, Currently Mined Lands, Embankments, Dams, etc.**
alfalfa	alfalfa	8	For low maintenance needs, select native species from Table 4 and 6.
alkali sacaton (saline sites)	alkali Sacaton	20	For situations where fertility, mowing, haying etc., will be done, select species from Table 2 and 3.
bahiagrass	bermudagrass	26	
bermudagrass	native grasses (Refer to saline-type sites in Range Planting (550)	5	

		specifications)		
yellow bluestems		tall fescue	20	
'Jose' tall wheatgrass		tall wheatgrass	26	
native mix		switchgrass	10	
switchgrass		western wheatgrass	18	
tall fescue				
western wheatgrass				

TABLE 6. Native Forbs and Legumes
(Use no more than 3% of any one species. No more than 5% of the total mixture is allowed for forbs and legumes.)

SPECIES	LIFE SPAN	FULL SEEDING RATE (PLS LB./AC)	INNOCULUM TYPE (SPECIES SPECIFIC)	REMARKS
Legumes				
catclaw sensitivebriar	perennial	2.0	Amorpha Spec 1	statewide
Illinois bundleflower	perennial	4.0	Desmanthus Spec 1	statewide
leadplant	perennial	2.0	Amorpha Spec 1	statewide
least snoutbean	perennial	2.0	Rynchosia Spec 1	statewide
prairie acacia	perennial	2.0	EL	statewide
prairie clover	perennial	4.0	F	statewide
partridge pea	annual	4.0	EL	statewide
roundhead lespedeza	perennial	2.0	EL	NE, SE, NW, SW
tephrosia	perennial	4.0	Tephrosia Spec 1	statewide
tickclover	perennial	2.0	EL	statewide
trailing wildbean	perennial	2.0	Strophostyles Spec 1	statewide
western indigo	perennial	2.0	EL	statewide
other legumes	perennial	2.0	Use appropriate	statewide
Forbs				
black sampson	perennial	2.0	statewide	
compass plant	perennial	2.0	NE, SE, NW, SW	
Engelmann's daisy	perennial	4.0	statewide	
gayfeather	perennial	4.0	statewide	
Maximilian sunflower	perennial	2.0	statewide	
pale echinacea	perennial	2.0	NE, SE	
Pitcher’s sage	perennial	4.0	NE, SE, NW, SW	
upright prairie coneflower	perennial	0.3	statewide	